AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application:

LISTING OF THE CLAIMS:

1-26. (Canceled).

27. (Previously Presented) A fire detector, comprising:

a first radiation transmitter and a first radiation receiver having a first beam path that forms a first scattering volume;

a second radiation transmitter and a second radiation receiver having a second beam path that is parallel to the first beam path and forms a second scattering volume, wherein the first scattering volume and the second scattering volume are spatially separated and do not overlap, wherein the first radiation transmitter and the second radiation transmitter are oriented by an angle of 180° from one another, and wherein the first radiation receiver and the second radiation receiver are oriented 180° from one another; and

a microcomputer to selectably control the first radiation transmitter and the second radiation transmitter, the microcomputer analyzing the first scattering volume and the second scattering volume through an analog-to-digital converter.

28. (Previously Presented) The fire detector as recited in claim 27, wherein the fire detector is configured to be installed flush with a ceiling.

29. (Previously Presented) The fire detector as recited in claim 27, wherein the fire detector is covered by a cover plate.

30. (Previously Presented) The fire detector as recited in claim 27, wherein the fire detector does not include an optical labyrinth.

31. (Previously Presented) The fire detector as recited in claim 27, wherein the first and second scattering volumes are at different distances from the cover plate.

32. (Previously Presented) The fire detector as recited in claim 27, further comprising:

a third radiation transmitter and a third radiation receiver have a beam path that forms a third scattering volume, the third scattering volume including at least a partial area of the surface of the cover plate covering the fire detector.

33. (Previously Presented) The fire detector as recited in claim 27, wherein the first and second beam paths are oriented rotated by an angle from one another.

34. (Canceled).

35. (Previously Presented) The fire detector as recited in claim 27, wherein the first and second beam paths of the first and second radiation transmitters and the first and second radiation receivers form two additional scattering volumes.

36. (Previously Presented) The fire detector as recited in claim 35, wherein the two additional scattering volumes are situated at different distances from the surface of a cover plate of the fire detector.

37. (Previously Presented) The fire detector as recited in claim 36, wherein the two additional scattering volumes have a larger distance from a cover plate of the fire detector than the first scattering volume and the second scattering volume in such a way that a smaller scattering angle results for a scattering action on the two additional scattering volumes.

38. (Previously Presented) The fire detector as recited in claim 27, further comprising:

holders configured to accommodate the first and second radiation transmitters and the first and second radiation receivers.

39. (Previously Presented) The fire detector as recited in claim 38, wherein the holders have angularly situated recesses for mounting the first and second radiation transmitters and first and second radiation receivers at a predefinable angle relates to a surface of the holder.

40. (Previously Presented) The fire detector as recited in claim 38, wherein the holders have

windows which allow passage of radiation.

41. (Previously Presented) The fire detector as recited in claim 38, wherein the holders are made of a material that absorbs radiation emitted by the radiation transmitter.

42. (Previously Presented) A method for operating a fire detector, the method comprising:

checking the fire detector for operability;

performing a function check of a set of transmitters and a set of receivers;

obtaining scattered radiation measured values from two different scattering volumes formed from parallel beam paths of the set of transmitters and receivers;

comparing the scattered radiation measured values to one another;

inferring a presence of smoke and a source of fire if the scattered radiation measured values are generally equal;

determining a type, a size, a distance and a color of the smoke; and

inferring a presence of an interfering body in a scattering volume if the scattered radiation measured values deviate from one another.

43. (Previously Presented) The method as recited in claim 42, wherein the scattered radiation measured values are obtained generally simultaneously from at least two simultaneously activated scattering volumes.

44. (Previously Presented) The method as recited in claim 42, wherein the scattered radiation measured values are obtained sequentially in time from alternately activated scattering volumes.

45. (Previously Presented) The method as recited in claim 42, wherein at least one of the scattering volumes includes at least partial areas of a surface of a cover plate which covers the fire detector and is formed by beam paths of at least one radiation transmitter and at least one radiation receiver, a first scattered radiation measured value being obtained by activating the radiation transmitter and the radiation receiver at a first instant when the surface of the cover plate is clean, and the first scattered radiation measured value being predefined as an idle signal characterizing a clean cover plate.

46. (Previously Presented) The method as recited in claim 45, wherein a second scattered radiation measured value obtained at a second, later instant is compared to the first scattered radiation measured value obtained at the first instant, and soiling of the cover plate is inferred if the second scattered radiation measured value is greater than the first scattered radiation measured value.

47. (Previously Presented) The method as recited in claim 46, wherein a limiting value is predefinable for the second scattered radiation measured value, and maintenance of the fire detector is requested if the limiting value is exceeded.

48. (Previously Presented) The method as recited in claim 42, wherein, if a scattered radiation measured value obtained at a later instant falls below a scattered radiation measured value obtained at a first instant, one of: i) a change of ambient temperature, and ii) aging of a radiation transmitter is inferred.

49. (Previously Presented) The method as recited in claim 48, further comprising: deriving a correction factor using a quotient calculation of the scattered radiation values.

50. (Previously Presented) The method as recited in claim 49, further comprising: applying to a radiation transmitter a current corrected by the correction factor.

51. (Previously Presented) The method as recited in claim 42, wherein scattered radiation measured values are obtained from scattering volumes which are at different distances from a cover plate of the fire detector.

52. (Previously Presented) The method as recited in claim 42, further comprising: comparing the scattered radiation measured values to determine a type of smoke and to recognize objects.

53. (Previously Presented) The method as recited in claim 52, wherein the comparison is performed by calculating quotients between the scattered radiation measured values.

54. (Previously Presented) The method as recited in claim 42, further comprising: selectively

controlling radiation transmitters and radiation receivers of the fire detector, radiation emitted from a selectively controlled radiation transmitter being conducted to a selectively controlled radiation receiver within the fire detector.

55. (Previously Presented) The fire detector as recited in claim 27, electronic circuit system filters and amplifies a signal sent by one of the first radiation receiver and the second radiation receiver.

56. (Previously Presented) The fire detector as recited in claim 27, further comprising:

a switching arrangement connecting the first radiation receiver and the second radiation receiver to an electronic circuit system only when the first radiation transmitter and the second radiation transmitter emit radiation.